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GWYNNE'S CENTRIFUGAL PUMP.

To the Public and the Visitors of the Great Exhi[illegible]

Three modes of raising water by centrifugal action are brou[illegible] under public notice in the Great Exhibition. Two of [illegible] simply hydraulic arrangements for raising water, the lifting a[illegible] ratus being in each instance placed below the level of the [illegible] be raised, while the third is a pump of compact form, capable of being applied in any situation in which pumps are used. E[illegible] one, while it professes to avail itself in the most efficient man[illegible] of the law of centrifugal force, differs in the mode of applying [illegible] to an extent which renders it absurd to raise, upon principle, [illegible] comparative analogies between them. If one be right, the ot[illegible] are necessarily wrong. Yet such comparisons are, neverthel[illegible] raised. One of them, the pump, is even said, in the Times ne[illegible] paper, 15th April, to be a "plagiarism" of another which is [illegible] a pump.* In this way objects distinct in themselves have [illegible] confounded, and parallels drawn between things which have [illegible] principles in common. The pump to which we refer is entitled [illegible] Direct-acting Balanced Centrifugal Pump, invented in the Uni[illegible] States, and the modes of raising water with which it is compa[illegible] are those exhibited by Mr. Appold and Mr. Bessemer. In [illegible] American pump it is assumed, upon the undeniable evidenc[illegible] experimental demonstration, that the centrifugal force act[illegible] right lines, and upon that, as a principle, it is constructed. [illegible] cular arrangements are also made in it to prevent lateral pre[illegible] which in Mr. Bessemer's apparatus must accumulate to an e[illegible] mous extent, proportionably with the height of the column [illegible] water. The inventors of the two systems of raising water, pl[illegible] in competition with the pump, have, it appears, constructed t[illegible] machines upon the unsupported assumptions either that the c[illegible] trifugal force acts in the direction of lines curving from the ce[illegible] to the circumference of the sphere of action, or that it may [illegible] assisted by the operation of oblique fans. Besides these, there [illegible] also many and important differences; but, as the value of [illegible] can only be estimated upon practical grounds, we have the au[illegible] rity of Mr. J. Stuart Gwynne, the inventor of the Direct-act[illegible] Balanced Centrifugal Pump, for making the following offers to [illegible] gentleman who may feel sufficiently interested in the subject to [illegible] the relative merits of these respective inventions to the te[illegible] actual experiment:—

1. Let the advocate of Mr. Appold's system put up his w[illegible] lifting apparatus, and Mr. Gwynne shall erect a pump of c[illegible] sponding power to compete with it; but the former shall have [illegible] privilege of selecting the size, situation, &c. Mr. Appold's [illegible] ratus and Mr. Gwynne's pump shall then be put to work, [illegible] the duty performed by each one carefully noted for the spa[illegible] twelve months;† and if, at the end of that time, the pump has [illegible] raised ten per cent. more water, with an equal amount of [illegible] consumed, Mr. Gwynne will forfeit 1,000l., and pay the sam[illegible] subscription to the funds of the London Mechanics' Institutio[illegible] but if, on the other hand, he shall have succeeded in his eng[illegible] ment, then the competitor on Mr. Appold's principle shall be bound to pay a like sum to the same Institution.

2. Let the advocate of Mr. Bessemer's mode of raising w[illegible] erect one of his "Centrifugal Disc Pumps," and Mr. Gwynne [illegible] put up one of his Direct-acting Balanced Centrifugal Pumps, [illegible] only condition being, that the height of the column to be r[illegible] shall, in both cases, not be less than 100 feet; while all subordi[illegible] circumstances of size, situation, &c., shall be left to the selec[illegible] of Mr. Bessemer. The pumps shall then, as before, be put to w[illegible] and, if at the end of one year, Mr. Gwynne's pump has not r[illegible] more water by five per cent.; and, if at the same time it has [illegible] worked through the entire period uninjured by wear and t[illegible] while Mr. Bessemer's, owing to friction and other impedim[illegible] consequent upon misapplication of principle, is either destro[illegible] or so impaired as to be rendered useless, Mr. Gwynne will before, forfeit 1,000l., and pay the same as a subscription to the funds of the London Mechanics' Institution; but if, on the contrary, he shall have succeeded in his challenge, then the competitor on Mr. Bessemer's principle shall pay a like sum to the same Institution.

THE PROPRIETORS OF THE ENGLISH PATENT.

1, Agar-street, Strand, London, July 28, 1851.

The experiments narrated in the Times of Wednesday, the 3rd inst., have no bearing upon the present challenge, which has now been three weeks before the public.

An exclusive licence for Scotland for the manufacture and sale of this Pump as applied to raising fluids to vacuum sugar-pans, condensing steam-engines, &c., having been sold to Mr. HENRY ANDERSON, Jun., orders for them for use in Scotland addressed to Messrs. ANDERSON and CO., No. 14, St. Enoch's-square, Glasgow, will receive prompt attention.

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* In a prospectus, published in May last, bearing the signa[illegible] of "W. Bessemer, C.E.," we are told that, in the early par[illegible] 1845, he first directed his attention to forcing fluids by centri[illegible] agency; and that, as the result of his deliberations, he prod[illegible] what he asserts to be the first machine ever constructed for [illegible] purpose of raising fluids by the direct application of centrif[illegible] force. The error of this statement will be sufficiently app[illegible] from an inspection of the following chronological table, the [illegible] rectness of which is within the knowledge of every one fam[illegible] with the mechanical operations both of the Old and [illegible] World:—

1732. The Centrifugal Pump was invented in France by [illegible] Demour.

1818. The Centrifugal Pump, improved, was introduced in [illegible] sachusetts, United States.

1830. The same machine, with additional improvements, [illegible] publicly employed in New York.

1831. The Centrifugal Pump, still further improved, was [illegible] ployed in Messrs. Blake's establishment, New Steam Mills, Co[illegible] ticut, United States.

1838. The first patent for improvements was taken out in [illegible] year for the United States, followed by the employment by [illegible] W. D. Andrews, of the improved pump, in the harbour of [illegible] York, in 1844 and 1845.

1844. Mr. Gwynne commenced at Pittsburgh, United Stat[illegible] series of experiments on the central forces, which resulted [illegible] invention and improvement of several most important machi[illegible] and, amongst others, of his Direct-acting Balanced Centri[illegible] Pump. The first public exhibition of it was made in Janu[illegible] 1849, at the Passaic Copper Mine, where he erected one 12 f[illegible] diameter, but it was not till 1850 that he applied for his pate[illegible] the United States.

1845. The idea of the possibility of raising water by centri[illegible] agency was published by Mr. Bessemer, of Baxter-house, Lond[illegible]

1846. Mr. Andrew's Pump was finally improved and secur[illegible] a patent, March 1846. This patent was purchased by Mr. Gwy[illegible] and an official copy of it, together with a working model of [illegible] Andrew's improved pump, may be seen at the offices, 1, Agar-[illegible] Strand.

1846. Messrs. Von Schmidt, of New York, patented a very c[illegible] torious modification of the Centrifugal Pump.

1848. In the November of this year, Mr. Appold publishe[illegible] model of a rotary pump, which he had worked with 2, 24, a[illegible] fans, and which he proposed to use for the drainage of marsh[illegible]

1849. June 23. Mr. Bessemer, of Baxter-house, patented an [illegible] tension of his idea of the possibility of raising water by centrif[illegible] power.

1850. Mr. James Whitelaw, of Johnstone, in 1846 invent[illegible] pump which raised a greater quantity of water than has been [illegible] tained by Mr. Appold, and in which the centrifugal force wa[illegible] clusively the source of power.

1850. In June Mr. Gwynne, being then in New York, sent to London a description of his Balanced Centrifugal Pump and [illegible] application to a variety of purposes, together with some othe[illegible] ventions involving the use of central forces; and these he d[illegible] should be included in a patent to be taken out under the [illegible] title:—"A new and useful improvement in condensing [illegible] other elastic fluids and for improvements in motive power [illegible] for propelling vessels, pumping fluids, and for other pu[illegible]" which patent, with an altered title, was granted in August, [illegible] On discovering that this title had been altered without his k[illegible] ledge, and that it did not cover his pump, Mr. Gwynne applie[illegible] another patent in January, 1851, which patent, though oppo[illegible] was finally issued to him on 21st March, 1851.

1850. Mr. Bessemer, of Baxter-house, gave increased dev[illegible] ment to his idea by exhibiting on his premises a method of r[illegible] water with a submerged horizontal disc.

† It may be asked, why is not one day as good as one year [illegible] trial of merit? This question would be fairly put if mere [illegible] were the only thing to be considered; but every man who [illegible] used a pump well knows that however satisfactory it may wor[illegible] first, it will yet in a short time, varying from a day to a mont[illegible] a year, become utterly worthless, requiring renewal or exte[illegible] repairs. For such reasons, the period of twelve months has [illegible] chosen for the time of trial.

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